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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,573	07/24/2003	Masatoshi Sakamoto	HITA.0415	7728
38327	7590	03/23/2006	EXAMINER	
REED SMITH LLP 3110 FAIRVIEW PARK DRIVE, SUITE 1400 FALLS CHURCH, VA 22042			NGUYEN, VAN THU T	
			ART UNIT	PAPER NUMBER
			2824	

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/625,573

Applicant(s)

SAKAMOTO ET AL.

Examiner

VanThu Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on AF on 02/08/06 and RCE on 03/08/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 4-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Amendment***

1. Amendment After Final filed on 02/08/2006 has been entered in response to RCE filed on 03/08/2006.
2. Claims 1-9 are pending.
3. Claims 1-3 are present for examination.
4. Claims 4-9 are withdrawn from consideration.

***Response to Arguments***

5. Applicant's arguments filed 02/08/2006 have been fully considered but they are not persuasive. See new ground of rejection below.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Watanabe et al. (U.S. Patent No. 6,418,067).

**Regarding claim 1**, Watanabe discloses, in FIGS. 6-8, a semiconductor memory device comprising:

a write signal line to transmit write data (e.g. IOWL and /IOWL, see FIG. 6);

a write buffer coupled to the write signal line to output the write data (e.g. write driver WDB0, see FIG. 7);

a write column selection switch (e.g. TGa and TGb, see FIG. 6) being possible to transmit said write data on said write signal line to a bit line (e.g. BLU and /BLU);

a write column selection line supplying an operation control signal to said write column selection switch (line transmitting signal CSLW, see FIG. 6);

a sense amplifier column comprising a plurality of sense amplifier circuits to amplify read data which are read to said bit line from a memory cell (e.g. SA, see FIG. 6);

a read signal line to transmit read data, said read signal line being different from said write signal line (e.g. IORL and /IORL, see FIG. 6);

a main amplifier coupled only to the read signal line to amplify the read data on the read signal line (e.g. pre-amplifier PA0, see FIG. 7)

a read column selection switch (e.g. TGc and TGd, see FIG. 6) to selectively transmit the read data of said bit line to said read signal line;

a read column selection line (line transmitting signal CSLR) supplying an operation control signal to said read column selection switch; and

a control circuit to control operations of said write column selection switch and read column selection switch in different timings (see timing diagrams of CSLW and CSLR signals in FIG. 8);

wherein said write signal line and said read signal line are allocated crossing said sense amplifier column and said write column selection line and said read column selection line are allocated in parallel to said sense amplifier column (e.g. see FIG. 4 for

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arrangement between sense amplifier bank SB#0 and IOR0-31, IOW0-31, CSLRA0-7, CSLWA0-7);

wherein the write data is transferred from the write buffer to said bit line via the write signal line, and the read data is transferred from said bit line to said main amplifier via the read signal line (WDV0 connected to IOW0 and PA0 connected to IOR0, see FIG. 7).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Naritake.

Watanabe discloses, as applied in prior rejection of claim 1, all claimed subject matter except further limitations as in claim 2.

**Regarding claim 2**, Naritake discloses, in FIG. 2, a sense amplifier circuit comprises a write amplifier section (comprising of M12-M15) to drive said bit line based on the data of said write signal line and a read amplifier section (comprising of M8-M11) to drive said read signal line based on the data of said bit line, wherein said write column selection line is provided using a wiring layer in the area where said write amplifier section is formed (34), and wherein said read column selection line is provided using a wiring layer in the area where said read amplifier section is formed (33).

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Since Watanabe and Naritake are both from the same field of endeavor, the purpose disclosed by Naritake would have been recognized in the pertinent art of Watanabe.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art implement a sense amplifier having both sections of sense amplifier and write amplifier for the purpose of efficiency read/write data from/onto the bit lines.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Naritake in view of Yamada et al. (U.S. Patent No. 5,506,808).

Watanabe and Naritake discloses, as applied in prior rejection of claims 1-2, all claimed subject matter except further limitation as in claim 3.

**Regarding claim 3**, Yamada et al. disclose, in FIG. 12, sense amplifier circuit comprising of a write amplifier section (3), a sense amplifier section (4), and a read amplifier section (output circuit 5) in order from left to right.

Since Watanabi, Naritake and Yamada et al. are all from the same field of endeavor, the purpose disclosed by Yamada et al. would have been recognized in the pertinent art of Watanabe and Naritake.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have the write amplifier section, the sense amplifier section, and the read amplifier section of the sense amplifier circuit in order listed because it has been held that re-arranging parts of an invention involves only routine skill in the art.

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*Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VanThu Nguyen whose telephone number is (571) 272-1881. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 20, 2006



VanThu Nguyen  
Primary Examiner  
Art Unit 2824